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**Probing Ligand Exchange Kinetics in Actinide/Lanthanide  
Solvent Extraction Systems using NMR Spectrometry**

Though the technique has been rarely applied for this purpose in solvent extraction systems, NMR spectrometry ( $^{31}\text{P}$ ) has great potential for application in improving understanding of ligand exchange kinetics of organophosphorus extractant molecules. In this report, features of ligand exchange dynamics of lanthanide complexes with (2-ethylhexyl) phosphonic acid mono (2-ethylhexyl) ester (HEH[EHP]) and di-(2-ethylhexyl) phosphoric acid (HDEHP) non-polar organic extractant solutions are studied.